

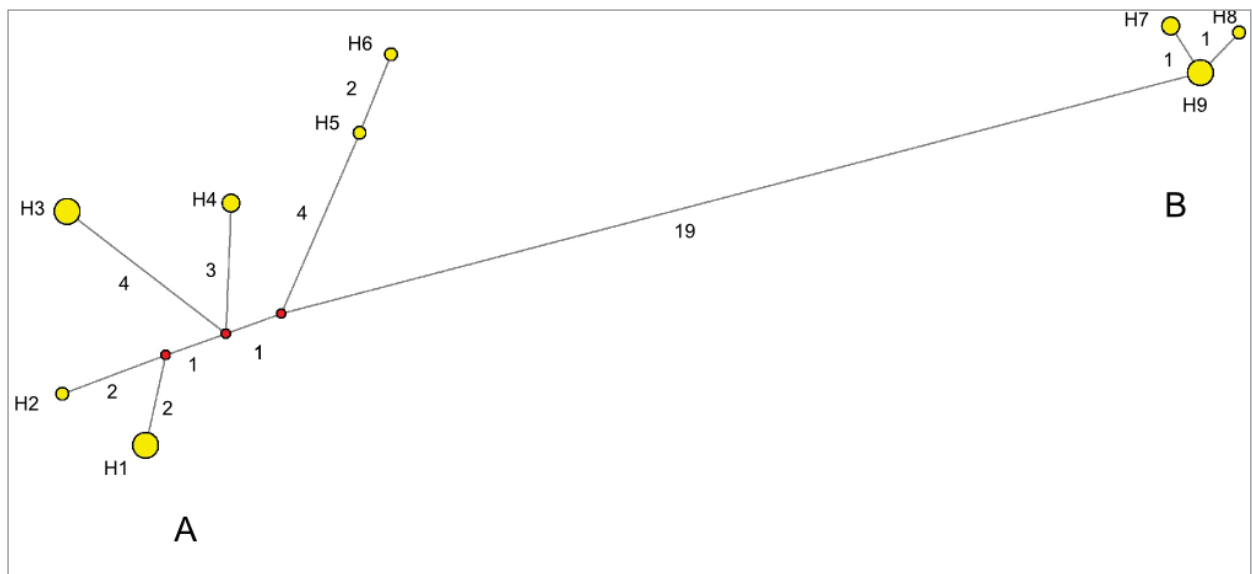
Region/summit abbreviation	SH	SH	SH	GA	GA	GA	GA	GA	GA	KR	KR	SS	SS	VN	VN	VN	VN	VN	VN	DL	DL		
Relevé numbers	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	
Coordinates N	46°41'38.7"	46°41'38.7"	46°41'38.7"	46°42'15.6"	46°42'15.6"	46°42'15.6"	46°42'15.6"	46°42'15.6"	46°42'15.6"	46°42'15.6"	46°42'15.6"	46°42'15.6"	46°42'15.6"	46°42'15.6"	46°42'15.6"	46°42'15.6"	46°42'15.6"	46°42'15.6"	46°42'15.6"	46°42'15.6"	46°42'15.6"	46°42'15.6"	Frequency
Coordinates E	7°32'14.4"	7°32'15.3"	7°32'16.4"	7°32'25.1"	7°32'25.0"	7°32'24.6"	7°32'21.4"	7°32'09.7"	7°32'00.2"	7°18'53.8"	7°18'51.3"	7°18'51.9"	7°15'03.1"	7°10'41.0"	7°10'45.7"	7°10'40.5"	7°10'02.5"	7°09'49.9"	7°09'46.0"	7°09'41.3"	7°00'15.7"	7°00'21.9"	
Altitude	2150	2150	2160	1910	1900	1900	1800	2150	2140	2090	2090	2100	2090	2170	2170	1980	2020	2010	1990	1960	2000	1990	
Exposition	N	N	N	N	N	N	S	NO	NO	NE	NE	N	N	N	N	NO	N	N	N	SE	N	NE	
Inclination (in degrees)	60	60	85	75	60	60	0	75	75	60	85	45	60	60	60	15	45	0	15	75	85	85	
Surface of the relevé (m <sup>2</sup> )	1	1	1	1	1	6	2	2	4	1	1	2	1	6	2	1	4	2	2	1	2	1	
Herbaceous cover (%)	75	75	50	75	25	50	25	25	75	100	50	50	50	75	75	75	100	25	50	100	75		
Bryophyte cover (%)	50	25	50	50	25	50	-	75	50	25	75	25	75	-	50	25	75	-	-	25	-	50	
Bare soil/rocks (%)	-	-	-	-	25	50	75	-	-	-	-	25	-	25	-	25	-	-	75	25	-	-	
Species number	13	10	8	15	17	26	16	15	18	15	12	12	8	22	22	13	17	18	14	13	14	10	
Species with frequency > 80%																							
Arenaria bernensis Favargor	1	2	2	1	1	1	1	4	2	3	4	1	2	1	1	3	3	2	1	1	2	2	100%
Festuca quadriflora Honck.	2	2	1	1	1	2	2	3	3	3	2	3	1	2	3	4	4	4	2	2	3	2	100%
Sesleria caerulea (L.) Ard.	1	1	-	1	2	2	2	2	1	-	3	2	2	2	2	1	1	1	-	1	1	2	86%
Ranunculus alpestris L.	-	1	2	2	1	1	1	1	-	1	1	1	-	2	1	-	2	3	1	2	2	3	82%
Species with frequency between 20% and 80%																							
Polygonum viviparum L.	3	2	1	-	-	1	-	2	1	1	-	2	-	1	2	-	1	3	-	-	1	-	59%
Saxifraga oppositifolia L.	-	1	1	1	1	-	1	1	-	1	-	2	-	1	1	-	-	-	1	-	1	2	59%
Galium anisophyllum Vill.	-	-	-	-	-	-	1	1	2	-	-	-	-	-	-	1	1	2	1	1	-	1	45%
Salix retusa L.	2	-	-	2	1	2	-	-	1	-	-	3	-	2	2	-	1	2	1	-	-		

Table S2. Relevés of *Arenaria multicaulis*

Region/summit abbreviation	SH	SH	SH	GA	GA	GA	KR	KR	SS	SS	VN	VN	VN	DL	DL	DL	
Relevé numbers	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	
Coordinates N	46°41'38.1"	46°41'37.9"	46°41'37.3"	46°42'16.7"	46°42'17.3"	46°42'24.9"	46°38'58.6"	46°38'55.1"	46°37'25.5"	46°37'48.8"	7°27'20.4"	7°27'20.4"	46°33'05.2"	46°32'06.5"	46°30'28.9"	46°30'22.7"	46°30'13.6"
Coordinates E	7°32'16.0"	7°32'14.7"	7°32'15.3"	7°27'28.1"	7°27'28.7"	7°27'20.4"	7°18'50.0"	7°18'51.2"	7°14'58.3"	7°15'31.8"	7°10'46.8"	7°10'45.4"	7°09'40.0"	7°00'15.8"	7°00'03.3"	6°59'43.8"	Frequency
Altitude	2150	2159	2140	1910	1900	1790	1990	2090	2010	1720	2160	2090	1870	2000	1980	1850	
Exposition	SE	S	SE	S	S	NE	E	E	E	S	S	S	SE	S	S	S	
Inclination (in degrees)	75	75	75	60	60	0	10	75	30	75	45	30	60	30	30	60	
Surface of the relevé (m²)	2	1	1	4	4	1	1	1	1	2	6	1	2	1	2	1	
Herbaceous cover (%)	50	100	75	50	75	25	100	75	50	50	75	100	25	100	50	75	
Bryophyte cover (%)	50	-	-	-	-	25	-	-	-	-	-	-	-	-	-	-	
Bare soil/rocks (%)	-	-	25	50	25	50	-	25	50	50	25	-	75	-	50	25	
Species number	16	14	15	28	23	23	14	14	12	17	27	25	24	14	15	13	
<b>Species with frequency &gt; 80%</b>																	
<i>Arenaria multicaulis</i> L.	1	2	2	1	1	1	2	1	2	2	1	2	2	3	2	1	100%
<i>Sesleria caerulea</i> (L.) Ard.	2	1	3	2	2	2	1	1	1	-	2	2	1	-	2	1	88%
<i>Carex sempervirens</i> Vill.	1	4	1	3	1	2	3	3	-	1	2	3	-	1	-	1	81%
<i>Festuca ovina</i> agg.	2	1	3	2	3	2	-	-	4	-	1	1	2	2	3	1	81%
<i>Galium anisophyllum</i> Vill.	1	1	1	1	1	1	-	1	1	-	-	1	1	1	1	1	81%
<i>Thymus polytrichus</i> Borbas	3	-	-	2	2	2	1	1	+	3	1	1	2	-	1	2	81%
<b>Species with frequency between 20% and 80%</b>																	
<i>Euphrasia salisburgensis</i> Hoppe	+	1	1	-	1	1	1	1	-	-	1	1	1	-	1	-	69%
<i>Festuca quadriflora</i> Honck.	-	2	2	1	-	-	2	4	1	-	1	-	-	4	1	1	63%
<i>Ranunculus tuberosus</i> Lapeyr.	1	1	1	1	1	1	-	-	1	-	-	1	-	1	-	2	63%
<i>Poa alpina</i> L.	1	-	-	2	-	1	1	1	-	-	2	2	-	1	1	-	56%
<i>Anthyllis vulneraria</i> ssp. <i>alpestris</i> (Schult.) Asch. & Graebn.	-	3	1	-	1	1	-	-	-	-	3	2	2	2	-	-	50%
<i>Trifolium thalii</i> Vill.	1	-	-	1	-	-	-	1	2	-	-	2	2	-	-	-	38%
<i>Erigeron glabratus</i> Bluff & Fingerh.	2	-	-	-	-	-	1	-	-	-	-	-	1	1	-	1	31%
<i>Leucanthemum adustum</i> (W.D.J. Koch) Gremli	-	-	-	1	1	-	-	-	-	1	1	-	1	-	-	-	31%
<i>Lotus corniculatus</i> L.	2	-	-	1	1	-	-	-	-	1	-	-	2	-	-	-	31%
<i>Minuartia verna</i> (L.) Hiern	-	-	-	1	-	1	-	1	-	-	1	1	-	-	-	-	31%
<i>Bupleurum ranunculoides</i> L. s.str.	1	1	1	1	1	1	-	-	-	1	-	-	-	1	1	1	63%
<i>Draba aizoides</i> L.	1	+	-	1	-	-	-	-	-	-	-	-	-	-	2	-	25%
<i>Aster bellidiastrum</i> (L.) Scop.	-	1	-	1	-	-	-	-	-	-	-	-	1	-	2	1	31%
<i>Helianthemum nummularium</i> ssp. <i>grandiflorum</i> (Scop.) Schinz & Thell.	-	-	1	2	3	-	-	-	-	4	1	-	-	-	-	-	31%
<i>Helianthemum alpestre</i> (Jacq.) DC.	-	2	2	1	2	1	-	-	-	-	-	-	-	1	-	-	38%
<i>Saxifraga paniculata</i> Mill.	-	-	-	1	1	-	-	-	-	-	1	-	1	-	-	-	25%
<i>Trifolium pratense</i> L. s.str.	1	-	-	-	1	1	-	-	-	-	1	-	-	-	-	-	25%
<i>Alchemilla conjuncta</i> agg.	-	-	-	-	-	3	2	2	3	1	-	2	1	-	+	-	50%
<i>Polygonum viviparum</i> L.	-	1	1	-	-	1	1	1	1	-	-	1	1	-	-	-	50%
<i>Scabiosa lucida</i> Vill.	-	-	-	-	-	1	-	-	-	-	-	1	+	-	-	1	25%
<i>Myosotis alpestris</i> F.W. Schmidt	-	-	-	-	-	-	1	-	2	1	1	-	-	-	-	-	25%
<b>Species with frequency &lt; 20%</b>																	
<i>Campanula scheuchzeri</i> Vill.	-	-	-	-	-	-	1	-	-	-	1	1	-	-	-	-	19%
<i>Carduus defloratus</i> L. s.str.	-	-	1	-	-	-	-	-	-	2	-	-	+	-	-	-	19%
<i>Hedysarum hedysaroides</i> (L.) Schinz & Thell.	-	-	-	-	-	2	-	-	1	-	1	-	-	-	-	-	19%
<i>Onobrychis montana</i> DC.	-	-	-	2	3	-	-	-	-	-	-	-	-	-	-	1	19%
<i>Ranunculus montanus</i> agg.	-	-	-	1	-	-	1	-	-	-	1	-	-	-	-	-	19%
<i>Sedum atratum</i> L.	-	-	-	-	-	-	-	-	-	+	-	-	+	-	1	-	19%
<i>Senecio doronicum</i> (L.) L.	-	-	1	-	-	-	-	-	-	-	1	1	-	-	-	-	19%
<i>Acinos alpinus</i> (L.) Moench	-	-	-	-	-	-	-	-	-	1	-	2	-	-	-	-	13%
<i>Botrychium lunaria</i> (L.) Sw.	-	-	-	-	-	-	-	-	-	-	+	-	-	-	+	-	13%
<i>Dianthus sylvestris</i> Wulfen	-	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-	13%
<i>Euphorbia cyparissias</i> L.	-	-	-	-	-	-	-	-	-	-	-	2	+	-	-	-	13%
<i>Globularia cordifolia</i> L.	-	-	-	1	-	-	-	-	-	-	-	-	-	1	-	-	13%
<i>Hieracium murorum</i> L.	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	1	13%
<i>Hieracium villosum</i> Jacq.	-	-	-	-	-	1	-	-	-	-	-	1	-	-	-	-	13%
<i>Phyteuma orbiculare</i> L.	-	-	-	1	-	-	-	-	-	-	1	-	-	-	-	-	13%
<i>Plantago alpina</i> L.	-	-	-	-	-	-	-	-	-	-	-	1	2	-	-	-	13%
<i>Pulsatilla alpina</i> (L.) Delarbre s.str.	-	-	-	-	1	-	-	-	-	-	-	-	-	1	-	-	13%
<i>Rhinanthus alectorolophus</i> (Scop.) Pollich	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	13%
<i>Salix retusa</i> L.	-	-	-	-	-	-	4	-	-	-	-	-	1	-	-	-	13%
<i>Sedum dasyphyllum</i> L.	-	-	-	-	-	-	-	-	-	1	-	1	-	-	-	-	13%
<i>Seseli libanotis</i> (L.) W.D.J. Koch	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	13%
<i>Silene nutans</i> L. s.str.	-	-	-	1	-	-	-	-	-	-	1	-	-	-	-	-	13%
<i>Agrostis alpina</i> Scop.	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	6%
<i>Asplenium viride</i> Huds.	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	6%
<i>Athamanta cretensis</i> L.	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6%
<i>Biscutella laevigata</i> L.	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	6%
<i>Carex parviflora</i> Host	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	6%
<i>Carum carvi</i> L.	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	6%
<i>Centaurea scabiosa</i> L. s.l	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	6%
<i>Dryas octopetala</i> L.	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	6%
<i>Elyna myosuroides</i> (Vill.) Fritsch	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	6%
<i>Festuca violacea</i> Gaudin agg.	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	6%
<i>Galium album</i> Mill.	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	6%
<i>Gentiana verna</i> L.	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	6%
<i>Helictorichon pratense</i> (L.) Besser	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	6%
<i>Leontopodium alpinum</i> Cass.	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	6%
<i>Oxytropis jacquini</i> Bunge	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	6%
<i>Polygala chamaebuxus</i> L.	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	6%
<i>Polystichum lonchitis</i> (L.) Roth	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	6%
<i>Potentilla aurea</i> L.	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	6%
<i>Primula auricula</i> L.	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	6%
<i>Ranunculus alpestris</i> L.	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	6%
<i>Saxifraga exarata</i> ssp. <i>moschata</i> (Wulfen) Cavill.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	6%
<i>Silene acaulis</i> (L.) Jacq.	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	6%
<i>Taraxacum officinale</i> Weber	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	6%
<i>Vicia sepium</i> L.	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	6%
<i>Euphrasia rostkoviana</i> Hayne	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	6%

**Table S3.** Distribution of haplotypes among individuals of the *A. ciliata* aggregate depicted in Figure S1.

Samples	Haplotypes								
	H1	H2	H3	H4	H5	H6	H7	H8	H9
1abe							1		
2abe							1		
4abe		1							
6abe			1						
7abe	1								
8abe			1						
9abe	1								
10abe	1								
11abe	1								
12abe			1						
13abe									1
15amu				1					
17amu					1				
18amu				1					
20amu			1						
22aci									1
23aci									1
24aci									1
25aci								1	
27ago						1			



**Figure S1.** Median-joining network of cpDNA haplotypes of *A. ciliata* aggr. The haplotypes are indicated by yellow circles, the sizes of which are proportional to their observed frequencies. Numbers of haplotypes as in Table S3. The numbers indicated along the lines of the network represent numbers of mutations that explain the transitions among haplotypes. The median vectors are depicted by red dots.



**Figure S2.** *Arenaria bernensis* at *locus classicus* (Leiterenpass BE, Switzerland). Left: Atypical number of petals (six) and other flower elements occur regularly in *A. bernensis* populations. Right: *A. bernensis* grows mainly on cool and shady slopes with northern exposition and is often accompanied by a rich moos flora and alpine dwarf *Salix* spp. (here *S. reticulata*).